A Review of the Feasibility of an International Standard Authority Data Number (ISADN)

Prepared for the IFLA Working Group on Functional Requirements and Numbering of Authority Records By Barbara B. Tillett Edited by Glenn E. Patton 1 July 2008

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Executive summary: The terms of reference given to the IFLA Working Group on Functional Requirements and Numbering of Authority Records by the IFLA Division of Bibliographic Control included the following:

- To define functional requirements of authority records
- To study the feasibility of an International Standard Authority Data Number
- To serve as the official IFLA liaison to and work with other interested groups concerning authority files.

This paper addresses the second charge. It is based on a discussion paper prepared for the Working Group by Barbara B. Tillett¹. The Working Group's discussions of the paper produced the following recommendations:

- IFLA should not pursue the idea of an International Standard Authority Data Number (ISADN) as it has been defined.
- IFLA should continue to monitor the progress of efforts of the ISO 27729 ISNI Working Group and the VIAF Project and any potential numbering that may result from those efforts. IFLA member institutions should also actively seek to influence the ISNI with a view to identifying common purposes with other communities.
- IFLA should continue to encourage the testing of various models to enable global sharing of authority information.
- IFLA should encourage the use of authority information in presenting improved catalog interfaces.

The idea of a simple unique number that everyone in the world could use to identify the same person, corporate body, work/expression, or subject is very alluring, especially with computer systems on the Web. The idea has been proposed many times over the past 30

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years, but is nearly impossible to achieve. Part of the difficulty is that things are viewed differently in different communities and parts of the world. Things can be given many names, and names often change over time and vary in different languages and scripts. Just pinpointing what is to be considered the thing to be numbered will vary from one community to another, based on the business need.

Yet the idea persists. Numbers are very appealing as an element of naming that could uniquely identify an entity. Having a unique number helps *avoid duplication*. A number lends itself to international application, because, for the most part, a number can be *language independent*. Using a number can facilitate having systems provide local displays of the locally preferred form of name (language and script). This would also have the potential for greater international sharing of bibliographic data, as the unique identifying number could be stored in bibliographic and authority records in the local system with the locally preferred forms of names.

Attempts have been made to build a system to create and maintain such unique identifying numbers. Suggestions have been made within IFLA (International Federation of Library Associations and Institutions) on the system requirements to build an international authority system including a registration system for International Standard Authority Data Numbers (ISADNs). Some have suggested possibilities for building intelligent numbers for ISADNs (see Bourdon). Centralized and distributed systems have been suggested for registering such numbers. Lots of problems have been identified over the years following the proposals for having such numbers. The proposals break down because there are too many fuzzy areas, too many conflicting perspectives of what such a number would be used for, and too many possibilities for duplication and mis-assignment of numbers when taken to an international level across different communities. Three frequently asked questions are the following:

What entity? Before one even gets to numbering, there are multiple problems with trying to identify across domains those entities that would get numbers. The entities recognized by the library communities do not exactly match those in archives, museums, publishing agencies, rights management agencies, etc.

What governance? Then there is the superstructure necessary for administering an international system of numbering. It would likely be prohibitively expensive. The management and governance to assure everyone in the world takes part and follows the agreed conventions, is unlikely to happen even within the library world let alone across communities worldwide.

And is it really even necessary? What tasks are we trying to accomplish by having unique numbers for entities? Could those tasks be accomplished in some other, less resource intensive way? The Working Group believes that they can be.

Task of controlling names

Having files of authority records has been a big step towards controlling the names given to entities which we identify in our bibliographic files in libraries. Controlled

vocabularies as reflected in authority files continue to be important, even essential to improving the precision and recall of searches. In the past and even today, in libraries we have provided control by requiring a single authorized form of name that is used for each entity (persons, corporate bodies, works/expressions, subjects), either as an authorized heading, a uniform title, or a subject heading.

When libraries began automating their cataloging operations, some system designers saw the advantage of using a control number in bibliographic records that would be linked to the authority record to save on storage, to make global update easier, and in general to provide better control over the displayed forms of names used. Not all systems took this approach, but the elegance of having a number that could be used behind the scenes to link the authorized heading in an authority record to a bibliographic record in which that heading was used was very attractive, especially for international applications. The heading in the language and script of the authority record could be displayed without having to be stored in each of the bibliographic records in which it was used.

One limitation of this solution, however, was that the MARC format required the text string for communicating and sharing bibliographic records, so systems had to supply the text string in lieu of the number when exporting records for data exchange.

With the advent of the Internet and networked systems worldwide, the use of identifiers for machine manipulation and navigation has been successful. The URLs and resolvers to enable connections and links to digital objects are a reality. As Cliff Lynch notes: "The assignment of identifiers to works is a very powerful act; it states that, within a given intellectual framework, two instances of a work that have been assigned the same identifier are the same, while two instances of a work with different identifiers are distinct." This same identification and disambiguation is what authority records also try to accomplish.

International cooperation for authority control

An overview of the efforts towards international cooperation in the area of authority data can be found in the writings of Françoise Bourdon. She reminds us of the history of these efforts and that the uses for authority files have grown over the years beyond just controlling the forms of names used in an individual library's catalog, to becoming more a reference tool available to anyone anywhere. (Bourdon, p. 65, 67)

Bourdon proposed an international center to collect all the records and suggested how it might be run. She also described a decentralized international system (p. 84), which she felt would be less effective, as it required strict adherence to the UBC principles about reusing bibliographic and authority data worldwide. There is still a lot to be said for the 1970's and 1980's IFLA push for "Universal Bibliographic Control" (UBC) that among other things encouraged national bibliographic agencies to be responsible for providing authority records for its national authors. However, we recognize that not all countries have national bibliographic agencies or national libraries, and some national libraries have a scope that is international rather than national. National bibliographic agencies also do not reflect the wider world of archives, museums, rights management, and publishing where authority information is also valued. Bourdon recognized the problem for authors from countries without national bibliographic agencies (NBAs) and concluded that a decentralized model, as she envisioned it, might prove to be more expensive and less effective than a centralized system.

She recommended addressing authority files in cataloguing rules (Bourdon, p. 87), which indeed is coming to pass with the IFLA draft *Statement of International Cataloguing Principles* and work towards *RDA: Resource Description and Access. RDA* is to cover authority control or access point management. Having rules for constructing authority records and identifying the elements to be included could lead to more uniformity across the communities using those cataloging instructions.

Two IFLA surveys in 1977/78 and 1989 (see Beaudiquez and Bourdon, 1991) documented the redundant work going on internationally in establishing authority records for the same entity. It has long been recognized that we could save a lot of that redundant work by sharing authority information. In the 1970's that would have been through exchanging authority records, but now it can be managed through Internet access to authority data on the Web. And who knows what the future may offer?

We should most certainly continue to work towards an "International Authority System" as those in the 1970's envisioned, at least among libraries. Not only would this help reduce library costs, it may well prove to be one of the building blocks for future international systems, such as the Semantic Web.

Why a number?

Are we still trying to save storage space? Are we trying to enable international linking or identification of the entity across communities (domains)? Or do we need to uniquely identify an entity for any reason or all purposes? Storage space is no longer an issue as the costs keep dropping. The dream of international sharing across domains remains alluring, but do we need a number to enable this dream?

There are several ways we could view providing a unique identifier for an entity through:

1) a single "authorized" or default form of name to uniquely identify the entity – i.e., an authorized heading, a unique text string (traditional library approach)

or

2) a unique number assigned to the entity to serve as a placeholder in various forms (citations, bibliographic records, authority records, etc.) and/or as a link to variant forms found in a control record for the entity to enable display in the user or system-preferred language/script/format — i.e., an ISADN

or

3) an "authority record" to cluster variant forms of names and to provide links to sources locating where the variant name was found, plus other identifying data and links to related entities that together provide a set of information elements to uniquely identify an entity and there may be other options in the future. Let's look at each of these three to start.

1) Single "authorized heading"

The case has been made many times before within IFLA about why it is not practical to have a single "authorized heading" for each entity that everyone in the world would use. Users of our catalogs need to have names they can understand, in languages and scripts they can read. One form established in China would probably not work in the United States.

In Dorothy Anderson's 1974 description of the IFLA concept of Universal Bibliographic Control (UBC), national bibliographic agencies were charged with the task of establishing the authoritative form of name for their country's personal and corporate authors. Yet, the single "authorized heading" that everyone in the world would use (a premise of Universal Bibliographic Control) only works when participants share the same standards for cataloging rules, language, and script. It breaks down when moved to the truly international arena and across different communities. For example, Confucius is the English, well known name, but it's Kung Fu in China and in Chinese script, and different names in other countries – the same entity, but known by different names and represented in different scripts around the world.

Since 1998, with the publication of the IFLA "MLAR" report, it has been recognized that

"requiring everyone to use the same form for headings globally is not practical. There are reasons to use the form of names familiar to our own users, in scripts they can read and in forms they most likely would look for in their library catalogue or national bibliography. Therefore, this Working Group recognizes the importance of allowing the preservation of national or rule-based differences in authorized forms for headings to be used in national bibliographies and library catalogues that best meet the language and cultural needs of the particular institution's users." (MLAR, p. 1)

Also in 1998, the IFLA Working Group on the Revision of *Form and Structure of Corporate Headings* reached the conclusion that "that requiring the world to all use the same form of (uniform) heading is not a feasible option."

2) ISADN (International Standard Authority Data Number)

Having a unique number assigned to the entity, an ISADN, has the attraction of being:

Language independent – a number could be easily stored in bibliographic records, authority records, or used as an identifying data element in other system applications used worldwide. However, a number needs to be "resolved" to a display name. Having that capability could enable the user to choose a preferred language/script/transliteration scheme, but a system must be able to recognize which

text string to display in response to such a request. But is a number really language independent? Some languages (like Arabic) don't use the "western-style Arabic numerals", so just how international is a western-style Arabic number really? It could probably be argued that, in today's Internet environment, one assumes everyone would use western-style Arabic numbers as the de facto universal characters for numbering. That, however, brings the risk that we would turn a blind eye to the local variations across the world, which is probably not a politically correct thing to do.

- System independent – a number could be used in any system or application without the system having to know any rules or standards. The system would only have to know what to do with a number and how to resolve it to a display that a human could understand (rather than the numeric code).

However, having a unique number assigned to an entity gets to be a major cost and administrative issue when we look beyond a single institution or a single cooperative program where people share the same standards. On an international level, to assure the uniqueness of such numbers, there would probably need to be a registering system and all the overhead associated with such an operation. Registration of a number also tangentially must relate to a particular application or business need. For some communities beyond libraries that might only involve a subset of the universe of all persons, families, corporate bodies, works/expressions that libraries care about.

There is no doubt that having a unique number would be useful. As the IFLA Working Group on Minimal Level Authority Records noted (MLAR report, p. 1): "Within this context, retrieval would be greatly enhanced by the use of some numbering mechanism to link the associated authority records created by the various agencies, either the local system record numbers or an International Standard Authority Data Number (ISADN) for the entity, as was suggested by IFLA in the 1970's."

However, that group went on to comment on the ISADN (MLAR report, p. 2): "The Working Group has concerns about the expensive overhead in maintaining such a numbering system. We recommend waiting to see how the emerging international electronic environment and advances in developing technologies impact the linking of records. However, opportunities will be pursued with similar records from the archival community and the realm of publishers and professional associations that maintain databases of members and copyright holders for royalties. We highly recommend a follow-on Working Group be formed in IFLA to pursue these new opportunities and to continue the work to develop a virtual shared resource authority file under the auspices of IFLA."

In 1979 IFLA had a Working Group on an International Authority System, led by Tom Delsey. They proposed (and UNESCO later also recommended) the establishment of an ISADN – International Standard Authority Data Number. As Bourdon notes (Bourdon, p. 79), at that time they felt the ISADN was essential for an International Authority System to work in order to identify entities "unambiguously on an international scale unimpeded by barriers of language." She recommended (Bourdon, p. 80): "The ISADN should not

just be attributed to the authority form but to the whole of the identification authority record drawn up by the NBA, which is responsible for the author in question." So the ISADN would refer to the authority record as a whole and not just to the authorized form of name, so it can control all forms of names for a given entity. In effect the number would identify the entity represented by the authority record.

Delsey described this as the view of the IFLA Working Group on an International Authority System: "The number would serve to identify the object of the authority entry, whether it be a person, a corporate body, a work, or a subject, and would be present in all variant records for that same object as the common element that would link them all regardless of the form of the heading. In an ideal implementation the standard number would be assigned by the national bibliographic agency designated as the agency responsible for establishing the authoritative heading under UBC. The number would also be recorded in conjunction with the heading in any bibliographic record in which the heading might be used. Once the heading and its corresponding number were registered, any other national bibliographic agency adapting the heading for its own use in its own national authority file would record the standard number with its variant version of the authority. Any subsequent importation either of bibliographic records carrying the heading or of variant authorities emanating from other national bibliographic agencies would trigger an automatic adjustment to conform with the national adaptation, and the records would then be cleanly integrated with the national file." (Delsey 1989, p. 24-25) Even back then it was recognized that the practical aspects of administrating such a system were "far from simple." (Delsey 1989, p. 25) This assumed reconciliation of variant authorities and properly registering all related variants under the same standard number.

More recently, the InterParty project also suggested having a standard number and a registration agency and suggested a business model to manage the assignment/registration of such numbers across several communities that would find such information important to their business. (MacEwan). While there has been no funding to continue the InterParty recommendations, ISO Technical Committee 46/Sub-Committee 9, in 2006, established ISO Project 27729, "International Standard Party Identifier (ISPI)" and charged a Working Group to "define specifications for the syntax, assignment, registration, and administration of an international standard identifier for parties (persons and corporate bodies) involved in the creation and production of content entities (e.g., authors, composers, performers, groups of performers such as orchestras, music publishers, music producers, book publishers, audiovisual producers, producers of sound recordings, broadcasters, etc.)". (ISO TC46) In May 2007, the name of the project was changed to "International Standard Name Identifier (ISNI)" and the ISO project may continue to evolve. Several members of the FRANAR Working Group have been involved in the ISO Working Group.

In February 2008, the Coalition for Networked Information held an invitational workshop on Authors and Identity Management. The meeting was attended by representatives from the U.S. national libraries; scholarly publishing, including societies, universities, archives, as well as commercial publishers; database services; representatives from institutional repositories at universities; and a variety of other organizations. Discussions recognized the reality of a wide variety of identifiers across "authority data" from all of these organizations and that priority should be given to methods of linking these identifiers. The FRANAR Working Group was represented in these discussions by Barbara Tillett.

IFLA continues to hang on to the concept of an ISADN. Within UNIMARC/Authorities, the "0- Identification Block" has the tag 015 reserved for the International Standard Authority Data Number. (UNIMARC/Authorities, p. 34-35). It shows up also in IFLA's *Guidelines for Authority and Reference Entries* (GARE) and the later *Guidelines for Authority Records and References* (GARR) as well as in the *Guidelines for Subject Authority and Reference Entries* (GSARE), all of which give instructions on how to present authority numbers in the authority record. However, in GARR there is recognition that an alternative number might be given:

"1.7.1.3. In the absence of, or in addition to, an ISADN an alternative number assigned by a regional or national agency may be given. This may be generated by the local system of the agency. The alternative number must be preceded by a code identifying the agency that assigned the number." (*GARR*, p. 23)

There is a footnote that the codes are in Bell's *An Annotated Guide to Current National Bibliographies*.

Delsey has more recently written about the ISADN and points out how difficult it would be to establish clear territorial boundaries for assigning ISADNs. He notes that even the alternative of "first in" requires a system where everyone can easily check the assignments made in order not to duplicate a number or assign more than one number to an entity – a system to register and search the registration files. He notes this argues for a centralized registration system, but that also introduces governance, administrative problems, so he then suggests that perhaps a decentralized system might be better. (Delsey 2004, p. 74)

To the Working Group, his description of how an ISADN registration system would need to work immediately points to the fact that we could not ever have such a system on an international scale. He indicates it "will have to support the same basic processes of searching the target file, evaluating the result set to eliminate false hits, and integrating the data retrieved into the host database. In a decentralized system, the processes involved in creating and maintaining a national or regional registration database will be analogous to those involved in contributing authority records to a cooperatively developed national database. Searching across national or regional databases to ensure that an ISADN has not already been assigned for a given entity will parallel the searching of a target database and evaluating search results for purposes of deriving data from an external source. In a centralized system, the processes will parallel those involved in uploading records to a database of linked files from various national sources." He concludes that if an international system such as he describes were feasible, the benefits

of the ISADN would be considerable to establish links between records from multiple international sources.

The Working Group, in its discussions of the ISADN, believes that development of such a system is unlikely to happen — the overhead of developing the necessary automated checks and creating a database and registration system do not seem to be in the near future, if at all. That has brought us to other possibilities beyond the three enumerated above.

Which entities redux? What is the scope?

For the purposes of FRANAR (Functional Requirements and Numbering for Authority Records), we are limiting the discussion to entities that would be represented in authority records: persons, corporate bodies, families, works/expressions, and subjects.

Even if we limit to those entities represented in authority records, we still have the problems of which entities, especially considering, in an international context, that different communities, depending on the cataloguing rules or standards being followed, recognize different entities. Certainly across communities like archives, museums, rights management agencies, publishers, it becomes even more complex.

What entities do we recognize, and when is a change of name for an entity a sign of a new entity or just merely a name change? We have at least the following issues:

- Bibliographic identities or "persona" are recognized as separate entities now in the draft *Statement of International Cataloguing Principles* and *AACR2*, but certainly that view is not yet universal in cataloguing codes worldwide. Rights management agencies would prefer to have all of the "personas" linked to the real person or corporate body to whom they are to pay royalties.
- Name changes over time (persons, corporate bodies, works/expressions) introduce the question of whether we have a new entity or not. Different cataloguing rules tell us to consider some changes as minor and some as major. Major changes require making a new authority record for a new "entity." There is not universal agreement on when this is necessary and in fact some past practices are being challenged (such as Antelman, p. 245 in exploring "Authority Record Identifiers" as a way to provide a work-level identifier to help cluster the members of a bibliographic family of serial works).
- Fuzzy matches exist. Often there is not enough information to uniquely identify each entity, so our library authority files include records for undifferentiated names. That set of entities represented in the authority record can change over time as more information is discovered to uniquely identify each entity formerly included, or more could be added.
- Is the number for the entity, the record, or all the names for the entity? How far do we need to take it? That actually depends on the business need and system design for any particular application. We need to assume the number is not for the real person, family, corporate body, or subject (we are not

proposing a "Big Brother" approach as in Orwell's *Nineteen Eighty-Four*). Most discussions have recognized the ISADN would be at the record level to provide a number to serve as a surrogate for naming the entity, but there may be some applications where we would need a number for each name given. For such applications, would they need numbers at the level of all variant names or just at the "authorized forms" in applicable languages and scripts? Again, it would depend on the business need. Antelman reminds us that the needs of administrative systems that "meet the business needs of their stakeholders" might be different from our needs in library systems. (Antelman, p. 245)

If we cannot settle on the use of such numbers and the entities they are to represent, it will be difficult to have a system of numbers.

What sort of number?

In 1993 Bourdon felt that the ISADN should be an 'intelligent' number and she went on to proposed how it would be constructed automatically by computer within a given NBA – requiring the nationality, the language, and the system's control number of the record. (Bourdon, p. 81) Unfortunately this breaks down, as not all names have a known "nationality" or they may have multiple nationalities and languages. She proposed the ISADN would be used in authority records and in bibliographic records with or without the authorized heading.

After Bourdon's proposal for an 'intelligent' number was discussed further within IFLA (as during the MLAR discussions), it seemed clear that any identifier number should not be intelligent, as it would be too difficult to scale up to international application.

One suggestion has been to just use a system assigned control number for the "enhanced" authority record, such as for the Virtual International Authority File proof of concept project. The problem here is that number would not necessarily be persistent – as it would be subject to maintenance, if found to duplicate (merge needed for two or more records that were found to be for the same entity) or if found to include more than one entity (a split needed to recognize separate entities mis-linked by the matching algorithms).

If numbers are to be used to clearly identify and distinguish one entity from others, the numbers must be carefully maintained and guarded and duplicate detection must be in place. Unfortunately we are not dealing with a perfectly ordered world of entities, as noted above, so the system is bound to fail and break down, but may be do-able for a subset that perhaps matters most to the stakeholders that wish to make it work. That is probably as good a result as we can expect to get, if indeed we want to venture down this path at all.

For library purposes, it may be "good enough" to have the record control numbers serve to identify the entities, and have multiple control numbers linked when possible. This might serve the purposes of bibliographic identification and linking. However, it is not clear that the needs of rights management agencies would be served by multiple identities and identifiers. Who will identify which of the libraries' persona matches the "real" person to be paid? That also assumes (perhaps mistakenly) that there is a match to a real person in the library authority records.

It's also probably not "good enough" for direct linking to manifestations/items. Items require specific resource identifiers, like URLs or persistent identifiers or location numbers, e.g., call numbers for things physically housed in collections. This really is a different kind of number altogether, but there could be connections (such as suggested for URNs to incorporate ISBNs, ISSN, SICI numbers, etc.).

As Antelman states (p.248-249): "If libraries again adopt an identifier with an administrative data model that is closely bound to the current business needs of publisher and distributors, the inevitable operational pressure will mean that, just as with ISSN, interoperability will be advanced at the expense of basic principles of bibliographic control."

3) An authority record

Our third option suggests the use of a cluster of authority records that could uniquely identify an entity.

This approach is already taken with the Getty Union List of Artists Names and the Consortium of European Research Libraries' CERL Thesaurus as well as some search engines that use a clustered approach. This begs the question of why would we need a unique identifier. Systems like Verity and Endeca, the new breed of search engines offering guided searching, can start with a Google approach of a keyword (or several keywords) and bring back categorized clusters of potential matches that the user can follow depending on the user's needs. Any of the variant forms in bibliographic or authority records are there for retrieval, and having the authority record offer the cluster of variant names for entities, the system can offer each of those forms as potential paths for further searching.

This third alternative is probably the most practical approach given today's technology. It avoids the issues of needing an international administrator, while taking advantage of what's already being done by libraries worldwide. It doesn't require exactness or complete matching of all authority records for the same entity, but hopefully shows the user the existence of close matches that might meet their needs.

It does require clearly labeling variant names and related names and specifying the language/script/transliteration scheme so machines can display or link the desired form(s).

The Virtual International Authority File (VIAF) model would be one application of this third alternative. As currently envisioned, the participating institutions in the VIAF system would continue to create and maintain their own authority files as now and would make those records available to the international authority system, where the central system "knows" about the various records, makes links among the records when it can

and can display the matches to a search query for the user to select a desired authority record. In future the data in such a system could also be used for customized displays of preferred names. Even though the initial research findings of the current VIAF system model (project with the Library of Congress, the Deutsche Nationalbibliothek, the Bibliothèque nationale de France, and OCLC) show that less than 10% of all records would be linked, this may be "good enough."

Recommendation

Because it looks promising that we could take advantage of Internet connections and systems to test VIAF models that would link existing authority records worldwide, across languages and scripts, we may find for many applications we don't need a number.

For those systems that found an ISADN necessary, they might use the automatically generated VIAF system identifier for the authority records if such a number were made publicly accessible. However, there would be the understanding that these numbers could change over time (which makes this less attractive).

Certainly, explorations will continue with the rights management, publishing agencies, and others to see if an international registry can be accomplished. It is still very unclear how such a system would be sustained from a business sense but IFLA groups should monitor the work of the recently formed ISO Project 27729 to develop an International Standard Name Identifier (ISNI). IFLA member institutions should also actively seek to influence the ISNI with a view to identifying common purposes with other communities.

The use of the newer search engines, like Verity or Endeca or similar guided or clustered searching offer the possibility of presenting the user (the cataloger, the reference librarian, the end user, etc.) with the names found in the authority systems, clustered or identified in such a way as to clearly offer paths for selecting the name or authority record best suited to that user's needs without the need for unique identifying numbers.

For the cataloger, retrieving a small set of authority records that matched a search query would help in making decisions about using an existing record or making a new authority record. System capabilities should be able to capture data from the source record found on the VIAF and make it usable in the local system environment — allowing the cataloger to edit as needed and to provide additional information. Machines can make matches without ISADNs and can display alternative forms of names without numbers.

Until there is a compelling business case and cost model for sustained management of an ISADN system, the Working Group recommends that:

- IFLA should not pursue the idea of an International Standard Authority Data Number (ISADN) as it has been defined.
- IFLA should continue to monitor the progress of efforts of the ISO 27729 ISNI Working Group and the VIAF Project and any potential numbering that may result

from those efforts. IFLA member institutions should also actively seek to influence the ISNI with a view to identifying common purposes with other communities.

- IFLA should continue to encourage the testing of various models to enable global sharing of authority information.
- IFLA should encourage the use of authority information in presenting improved catalog interfaces.

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